

									RO	OM AIR BAL	ANCE	SCHE	DULE									
							SUPF	PLY				RETUR	OR EXHAUS	Т								
ROOM NO	ROOM NAME	AIR HANDLING UNIT NO	TERMINAL UNIT	INDIVIDUAL ROOM TEMP CONTROL	ROOM A	IR FLOW	# OF AIR DEVICES	AIR DEVICE MARK	SUPPLY FAN	RETURN OR EXHAUST (R/E)		AIR FLOW	# OF AIR DEVICES		RETURN OR EXHAUST FAN	ROOM AIR FLOW	ROOM AIR BALANCE	NE INFILTE	ET RATION		ET RATION	REMARKS
					CFM	L/S				,	CFM	L/S				CV VAV		CFM	[L/s]	CFM	[L/s]	
B0320	PT ROOM	AHU-B0320A	VAV-B0320	Υ	2610	[1200]	6	SG-2	SF	R	2610	[1200]	2	RG-2	N/A	X	0	0	[]	0	[]	
C1B508	HALLWAY	AHU-B0320A	VAV-C1B508	Y	3600	[1700]	3	SG-3	SF	R	2900	[1400]	1	RG-3	N/A	Х	+700	0	[]	800	[380]	EXFILTRATION THRU VESTIBU
1355	PATIENT TRAVEL	AHU-B0320A	VAV-1355	Y	350	[170]	2	SG-1	SF	R	350	[170]	1	RG-1	N/A	Х	0	0	[]	0	[]	
1357	ALCOVE	AHU-B0320A	VAV-1355	N	100	[47]	1	SG-1	SF	N/A	N/A	N/A	N/A	N/A	N/A	Х	+100	0	[]	100	[47]	EXFILTRATION THRU VESTIBU
1358	AGENT CASHIER	AHU-B0320A	VAV-1358	Y	500	N/A	2	SG-1 SG-2	SF	E	500	[240]	1	RG-1	N/A	Х	0	0	[]	0	[]	

					NIT SCHEDULE	rminal un	E DUCT AIR TEF	SINGLI								
REMARKS	PERIMETER SUPPLEMENTAL HEAT		REHEAT		CONTROL SEQUENCE	CONTROL	ADDITIONAL SOUND ATTUNATION	IN	LOW MI	AIR F	M	SIZE	SYSTEM AIR	AREA AND/OR	LOCATION	MARK
KLIVIAIKO	LINK	NONE	ELEC	HW	OONTHOE SEQUENCE	TYPE	REQUIRED	[L/s]	CFM	[L/s]	CFM	OIZL	HANDLING	ROOM SERVED	LOCATION	IVIZITI
	NONE		_	(1)	5 DEGREE DEADBAND	VAV	NONE	[710]	1500	[1200]	2610	24/16	AHU-B0320A	B0320	B0320A	VAV-B0320
				(')												
	FINNED PIPE RADIATION	-	-	(1)	5 DEGREE DEADBAND	VAV	NONE	[1100]	2400	[1700]	3600	24/16	AHU-B0320A	C1B508	1355	VAV-C1B508
	NONE	-	-	(1)	5 DEGREE DEADBAND	VAV	NONE	[110]	230	[170]	350	8	AHU-0320A	1355 & 1357	1355	VAV-1355
	NONE	-	-	(1)	5 DEGREE DEADBAND	VAV	NONE	[170]	370	[280]	600	8	AHU-0320A	1358	1357	VAV-1358

			AIR I	FLOW		NAAN	(ADD		PANEL	/FRAME SIZE	NE	CK SIZE					
MARK	TYPE	N	ЛIN	N	1AX	WAX	(APD	MOUNTING	INI w INI	[mm v mm]	INI	[mm]	NC	DAMPER	FINISH	THROW	REMARKS
		CFM	[L/s]	CFM	[L/s]	IN WG	[Pa]		IN x IN	[mm x mm]	IN	[mm]					
SG-1	SUPPLY	100	[47]	250	[120]	0.100	[25]	CEILING	24 x 24	[600 x 600]	8 ø	[203 ø]	20	NONE	WHITE	4-WAY	"PRICE - ASPD"
SG-2	SUPPLY	251	[120]	450	[210]	0.100	[25]	CEILING	24 x 24	[600 x 600]	12 ø	[305 ø]	20	NONE	WHITE	4-WAY	"PRICE - ASPD"
SG-3	SUPPLY	1200	[570]	1200	[570]	0.100	[25]	SIDEWALL	138 x 6.5	[3505 x 165]	-	-	20	YES	(4)	1-WAY	"PRICE - LV1"
RG-1	RETURN	300	[140]	600	[280]	0.100	[25]	CEILING	24 x 12	[600 x 300]	8 ø	[203 ø]	20	NONE	WHITE	-	"PRICE - 81"
RG-2	RETURN	1305	[620]	1305	[620]	0.100	[25]	CEILING	24 x 24	[600 x 600]	16 ø	[406 ø]	20	NONE	WHITE	-	"PRICE - 81"
RG-3	RETURN	2900	[1400]	2900	[1400]	0.100	[25]	SIDEWALL	72 x 14	[1800 x 350]	-	-	25	NONE	(4)	-	"PRICE - 93"

- 1. CEILING SUPPLY GRILLES SHALL HAVE 4-WAY THROW PATTERN.
- 2. SEE DETAIL FOR DAMPER IN BRANCH DUCT SERVING EACH DIFFUSER.
- PROVIDE SQUARE TO ROUND ADAPTER.
- 4. COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S OPTIONAL FINISHES.

				INTA	KE/EXH	HAUST HOO	DD SCH	HEDULE	•			
MARK	LOCATION	SYSTEM AND/OR	TYPE	APPLICATION	THR	OAT SIZE	AIR F	FLOW	Al	PD	DAMPER TYPE	REMARKS
		SERVICE			IN	[mm]	CFM	[L/s]	IN	[Pa]		
IH1	ROOF	AHU-B0320A	INTAKE	DUCTED	58 x 38	[1473 x 965]	6500	[3100]	0.1	[25]	AUTO	LOUVERED (1)
EH1	ROOF	EXIST. ISOL. RM	EXHAUST	DUCTED	18 x 18	[457 x 457]	200	[94]	0.05	[13]	BACKDRAFT	LOW SILHOUETE (1)

					AIR F	LOW M	EASUF	RING DE	VICE S	CHEDU	JLE		
		OVOTEM		AIR F	LOW			DUCT	SIZE			DD	
MARK	LOCATION	SYSTEM AND/OR	M	1IN	М	AX	W	IDTH	HEI	IGHT	A	PD	REMARKS
		SERVICE	CFM	[L/s]	CFM	[L/s]	IN	[mm]	IN	[mm]	IN	[mm]	
AFMD1- B0320A	B0320	AHU-B0320A	800	[380]	6500	[3100]	38	[950]	24	[600]	0.1	[3]	OUTSIDE AIR
FMD2-B0320A	B0320	AHU-B0320A	3700	[1700]	6500	[3100]	38	[950]	24	[600]	0.1	[3]	RETURN AIR
FMD3-B0320A	FAN INLET	AHU-B0320A	4500	[2100]	6500	[3100]	-	[]	-	[]	0.1	[3]	SUPPLY AIR

					LOUVER	SCHED	JLE	I		
MARK	SERVICE	AIR F	FLOW	SI	ZE WxH	FREE	AREA	MAX	APD	REMARKS
		CFM	[L/s]	IN x IN	[m x m]	SF	[sq m]	IN WG	[Pa]	
L-1	GRAVITY TRANSFER	0	[-]	40 x 88	[1.0 x 2.2]	13.3	[1.2]	-	[-]	"GREENHECK ESJ-401" (1)(2)(3)

- 1. PROVIDE WITH BIRD SCREEN.
- 2. COLOR AND FINISH AS SELECTED BY ARCHITECT FROM MANUFACTURER'S OPTIONAL FINISHES.

Date

3. FRAME TYPE AS SELECTED BY ARCHITECT.

						AIR CO	OLED CO	NDENSI	NG UI	NIT SC	HEDUL	E (AIR	CONDI	TIONIN	IG SER'	√ICE)							
				N.4	IN		MAX SUCT	ION TEMP						COM	PRESSOR I	NOTOR			COND	ENSER FA	N MOTOR		
AREA ANI BLDG SEF		SYSTEM AND/OR SERVICE	TYPE		ERATION	REFRIGERANT	@ C		OA ⁻	TEMP	MIN EER	IPLV	# COMP	NOMINA	L POWER	PHASE	VOLT	# FANS	NOMINA	L POWER	PHASE	VOLT	REMARKS
				MBH	[kW]		°F	[°C]	°F	[°C]				HP	[kW]				HP	[W]	-		
BLDG 1 SO. ENT		AHU- B0320A	SCROLL	254	[870]	410a	42	[6]	110	[43]	10.0	10.9	2	19.8 RLA	[]	3	460	2	1	[750]	3	460	(1) (2)
SO. ENT	RY	B0320A	JONOLL	204	[0/0]	4100	72	[0]	110	[40]	10.0	10.9	2	RLA	L J			400	400 2	400 2 1	400 2 1 [700]	400 2 1 [100]	400 2 1 [100] 3 400

(1) UL-RATED STARTERS SHALL BE FURNISHED BY MANUFACTURER OF EQUIPMENT. (2) DUAL REFRIGERANT CIRCUITS.

						А	IR HAN	IDLING	UNIT S	CHEDU	ILE					
							AIR F	LOW								
MARK	LOCATION	AREA AND/OR BLDG SERVED	100-	AIR FLOW	SUF	PPLY	MIN	I OA	RET	URN	SUPPLY FAN MARK	PREFILTER MARK	AFTER FILTER MARK	PREHEAT COIL MARK	COOLING COIL MARK	REMARKS
					CFM	[L/s]	CFM	[L/s]	CFM	[L/s]						
AHU-B0320A	B0320A	BLDG 111 SO. ENTRY	PRE-ENGINEERED	VAV	6500	[3100]	800	[380]	5700	[2700]	SF- B0320A	PF-1- B0320A	PF-2- B0320A	HWHC- B0320A	DXCC- B0320A	TRANE SIZE 14

(1) DESIGN BASED ON MODULAR AIR HANDLING UNIT AS MANUFACTURED BY TRANE (SIZE 14) HAVING OVERALL DIMENSIONS OF APPROXIMATELY 230" LONG 42" HIGH 72" WIDE

											FAN SCHE	DULE													
			SYSTEM	AID E	-1 0)4/	_	TOD				FAN									MOTOR ELE	CTRICAL				
MARK	LOCATION	AREA AND/OR BLDG SERVED	AND/OR	AIR F	LOW		TSP	TYPE	\\\\	CLACC	ARRANGEMENT, ROTATION,	DIAM	ETER	MIN %	DRIVE	FAN MAX	NOM	INAL PO	WER	DHACE	VOLT	RPM	SPEED	CONTROL SEQUENCE	REMARKS
			SERVICE	CFM	[L/s]	IN	[Pa]	ITPE	WHEEL	CLASS	AND DISCHARGE	IN	[mm]	EFF	DRIVE	RPM	ВНР	HP	[kW]	PHASE	VOLT	RPIVI	CONTROL		
SF- B0320A	B0320A	BLDG 111 SO ENTRY	AHU- B0320A	6500	[3100]	6	[1500]	SINGLE WIDTH SINGLE INLET	AIRFOIL	II	PLENUM	22	[550]	67%	DRECT	2454	8.9	15	[11]	3	460	2020	VARIABLE		

										DIREC	CT EXPA	ANSIO	N COOL	ING C	OIL SC	HEDUL	E.								
			SYSTEM	AID E	FLOW	MAX F	ACE	AP	D		EA	.T			LA	Т		ТО	TAL	SENS	SIBLE		SATUR	RATED	
MARK	LOCATION	AREA AND/OR BLDG SERVED	AND/OR	AIR	-LOVV	VELO	CITY	AP			Db	V	Vb	[Ob	V	Vb	CAPA	ACITY	CAPA	CITY	REFRIGERANT	SUCTIO	N TEMP	REMARKS
			SERVICE	CFM	[L/s]	FPM	[M/s]	IN WG	[Pa]	°F	[°C]	°F	[°C]	°F	[°C]	°F	[°C]	MBH	[kW]	МВН	[kW]		°F	[°C]	
DXCC- B0320A	B0320A	BLDG 111 SO. ENRTY	AHU- B0320A	6500	[3100]	475	[1]	0.65	160	80	[27]	67	[19]	53	[12]	52	[11]	250	[850]	195	[670]	410A	44	[7]	INTERWINED CIRCUITING TYPE

			SYSTEM				MAX	FACE		_		TEMPER	ATURES		TOTA	AL MIN					HOT	NATER						
MARK	LOCATION	AREA AND/OR BLDG SERVED	AND/OR	APPLICATION	AIR	FLOW		CITY	AF	טי	Е	AT	L	AT	_	ACITY	FL	OW	EV	VT	L	WT	W	PD	BRANG	CH PIPE	% GLYCOL	REMARKS
		DEDO CENTED	SERVICE		CFM	[L/s]	FPM	[M/s]	IN WG	[Pa]	°F	[°C]	°F	[°C]	MBH	[kW]	GPM	[L/s]	°F	[°C]	°F	[°C]	FT	[kPa]	IN	[mm]		
HWHC- B0320A	B0320A	BLDG 111 SO. ENTRY	AHU- B0320A	PREHEAT	6500	[3100]	476	[2]	0.3	[75]	45	[7]	75	[24]	220	[750]	15	[1]	180	[82]	150	[66]	8	[24]	1.5	[38]	0	(1)
VAV-B0320	B0320	B0320	REHEAT	VAV REHEAT	2610	[1200]	550	[3]	0.2	[50]	55	[13]	100	[38]	130	[440]	10	[1]	180	[82]	150	[66]	3	[9]	1.5	[38]	0	
VAV-C1B508	1355	C1B508	REHEAT	VAV REHEAT	3600	[1700]	760	[4]	0.2	[50]	55	[13]	100	[38]	180	[610]	12	[1]	180	[82]	150	[66]	3	[9]	1.5	[38]	0	(2)
VAV-1355	1355	1355	REHEAT	VAV REHEAT	350	[170]	350	[2]	0.2	[50]	55	[13]	100	[38]	17.5	[60]	2	[]	180	[82]	150	[66]	3	[9]	1	[25]	0	
VAV-1358	1357	1358	REHEAT	VAV REHEAT	600	[280]	515	[3]	0.2	[50]	55	[13]	100	[38]	30	[100]	2	[]	180	[82]	150	[66]	3	[9]	1	[25]	0	

(1) PUMPED HOT WATER COIL IN AHU

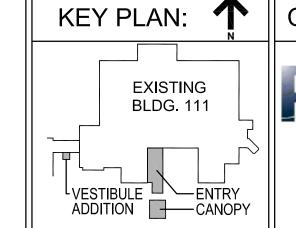
(2) PIPE COIL WITH 3-WAY TEMPERATURE CONTROL VALVE

								Alf	RFILTE	R SCH	EDULE					
			SYSTEM	MERV RATING	AIR FLOW		APD									
MARK L	LOCATION	AREA AND/OR BLDG SERVED	AND/OR				INITIAL		CHANGEOVER		HOUSING TYPE	AREA	SIZE		ARRANGEMENT	REMARKS
			SERVICE		CFM	[L/s]	IN	[mm]	IN	[mm]		AREA	IN	[mm]	ARRANGEWENT	KEWIAKKS
PF-1- B0320A	B0320A	BLDG 111 SO. ENTRY	AHU- B0320A	7	6500	[3100]	0.25	[6]	1.0	[25]	SIDE	13.4 S.F.	(4) 20 x 16 x 1 (2) 25 x 16 x 1	[508 x 406 x 25] [635 x 406 x 25]	3 WIDE BY 2 HIGH	
PF-2- 0320A	B0320A	BLDG 111 SO. ENTRY	AHU- B0320A	11	6500	[3100]	0.3	[8]	1.5	[38]	SIDE	13.4 S.F.	(4) 20 x 16 x 12 (2) 25 x 16 x 12	[508 x 406 x 305] [635 x 406 x 305]	3 WIDE BY 2 HIGH	

							S	OUND	ATTENUA	TING D	EVICE S	CHED	JLE							
		SYSTEM ATION AND/OR SERVICE	SVSTEM	SVSTEM		AIRFLOW		APD INLET SIZ		ET SIZE	T SIZE LENGTH		DYNA							
MARK LOCATION	LOCATION		TYPE							63 1.	125	250	500	1000	2000	4000	8000	REMARKS		
				CFM	[L/s]	IN WG	[Pa]	IN	[mm]	IN	[mm]	1	2	3	4	5	6	7	8	
SAD1- B0320A	B0320A	AHU-B0320A SUPPLY	RECTANGULAR	6500	[3100]	0.3	[75]	32 x 32	[813 x 813]	48	[1200]	0	0	0	7	7	12	17	10	
SAD2- B0320A	B0320A	AHU-B0320A RETURN	RECTANGULAR	5700	[2700]	0.3	[75]	32 x 32	[813 x 813]	48	[1200]	0	0	5	12	0	8	5	10	

Dept. of Veterans Affairs Medical Center 5000 W. National Avenue Milwaukee, WI









Project Title
Building 111 Renovate South Entry Drawing Title HVAC DETAILS Location
Milwaukee, Wisconsin Approved: Project Director Checked By: Drawn By:

FINAL CONSTRUCTION DOCUMENTS Project Number 695-12-101SCP Building Number Management Drawing Number

MM600 Department of Veterans Affairs

Office of

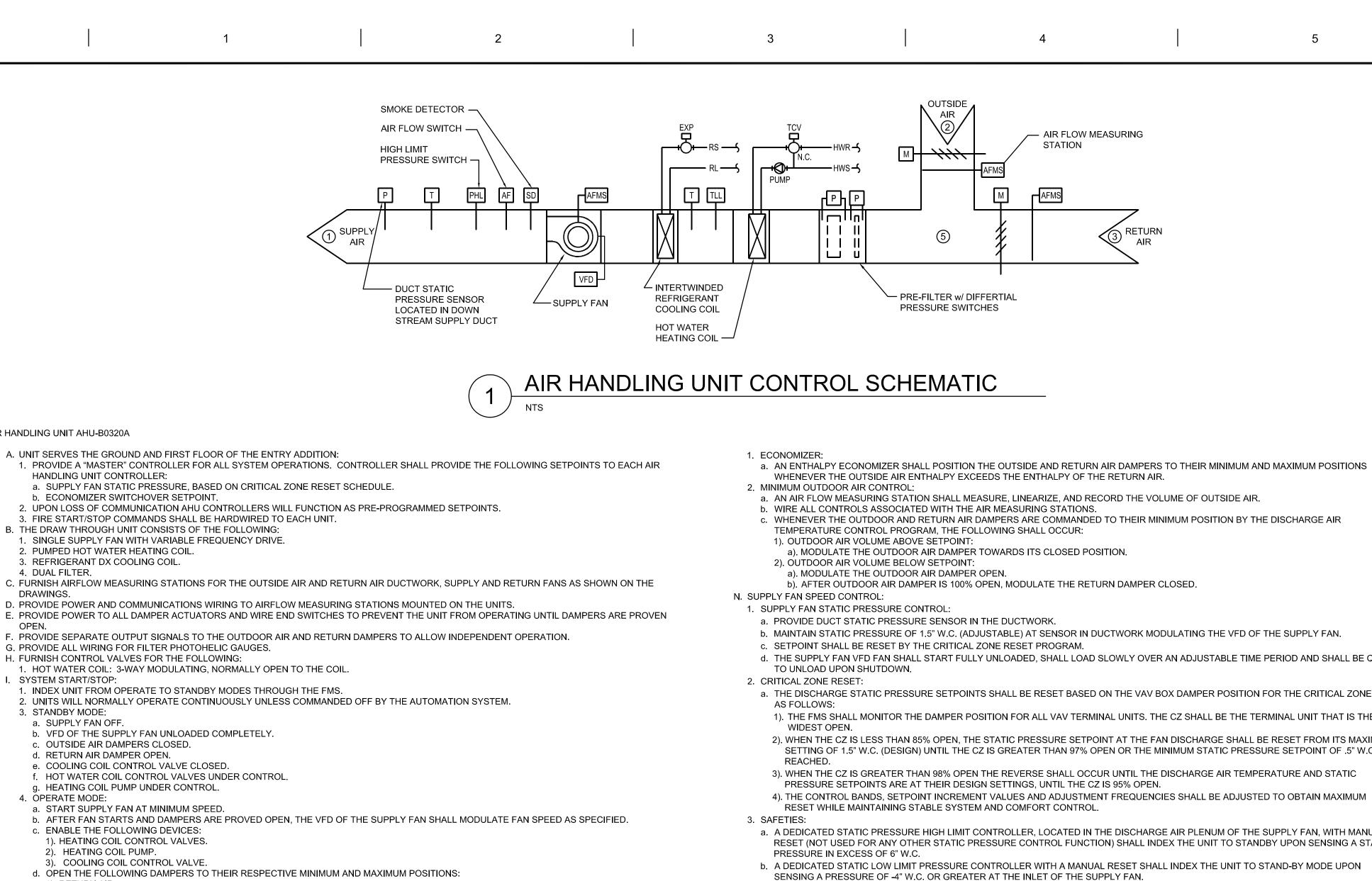
Facilities

Revisions: VA FORM 08-6231, OCT 1978

; o

June 23, 2014

MJJ



b). AFTER OUTDOOR AIR DAMPER IS 100% OPEN, MODULATE THE RETURN DAMPER CLOSED. b. MAINTAIN STATIC PRESSURE OF 1.5" W.C. (ADJUSTABLE) AT SENSOR IN DUCTWORK MODULATING THE VFD OF THE SUPPLY FAN. d. THE SUPPLY FAN VFD FAN SHALL START FULLY UNLOADED, SHALL LOAD SLOWLY OVER AN ADJUSTABLE TIME PERIOD AND SHALL BE QUICK a. THE DISCHARGE STATIC PRESSURE SETPOINTS SHALL BE RESET BASED ON THE VAV BOX DAMPER POSITION FOR THE CRITICAL ZONE (CZ) 1). THE FMS SHALL MONITOR THE DAMPER POSITION FOR ALL VAV TERMINAL UNITS. THE CZ SHALL BE THE TERMINAL UNIT THAT IS THE 2). WHEN THE CZ IS LESS THAN 85% OPEN, THE STATIC PRESSURE SETPOINT AT THE FAN DISCHARGE SHALL BE RESET FROM ITS MAXIMUM SETTING OF 1.5" W.C. (DESIGN) UNTIL THE CZ IS GREATER THAN 97% OPEN OR THE MINIMUM STATIC PRESSURE SETPOINT OF .5" W.C IS 3). WHEN THE CZ IS GREATER THAN 98% OPEN THE REVERSE SHALL OCCUR UNTIL THE DISCHARGE AIR TEMPERATURE AND STATIC 4). THE CONTROL BANDS, SETPOINT INCREMENT VALUES AND ADJUSTMENT FREQUENCIES SHALL BE ADJUSTED TO OBTAIN MAXIMUM a. A DEDICATED STATIC PRESSURE HIGH LIMIT CONTROLLER, LOCATED IN THE DISCHARGE AIR PLENUM OF THE SUPPLY FAN, WITH MANUAL RESET (NOT USED FOR ANY OTHER STATIC PRESSURE CONTROL FUNCTION) SHALL INDEX THE UNIT TO STANDBY UPON SENSING A STATIC b. A DEDICATED STATIC LOW LIMIT PRESSURE CONTROLLER WITH A MANUAL RESET SHALL INDEX THE UNIT TO STAND-BY MODE UPON SENSING A PRESSURE OF -4" W.C. OR GREATER AT THE INLET OF THE SUPPLY FAN. c. FANS SHALL NOT BE ALLOWED TO OPERATE ABOVE MINIMUM SPEED UNTIL ALL DAMPERS ARE PROVED OPEN BY END SWITCHES. O. LIFE SAFETY INTERLOCKS: 1. INTERLOCK CONTROL SYSTEM TO FIRE ALARM ZONE MODULES PROVIDE BY OTHERS. a. UNIT ALARM 1). OCCURS WHEN DISCHARGE SMOKE DETECTOR(S) ARE ACTIVATED. UNIT IS INDEXED TO STAND-BY MODE. b. ALARM ON FLOORS NOT SERVED BY UNIT: 1). UNIT OPERATES NORMALLY. c. ALARM ON FLOORS SERVED BY UNIT: 1). UNIT CONTINUES TO OPERATE.

1). UNIT IS INDEXED TO THE STAND-BY MODE. P. CONTROL PANEL: 1. ALL COMPONENTS REQUIRED FOR CONTROL OF THIS SYSTEM SHALL BE INSTALLED IN A TEMPERATURE CONTROL PANEL LOCATED AS SHOWN

d. ALARM IN SPRINKLER ZONE OR AT SMOKE DETECTOR SERVED BY UNIT:

(T) THERMOSTAT

B. CONTROL VALVE: TWO-WAY (OR THREE-WAY WHERE INDICATED), MODULATING, NORMALLY OPEN. RISE IN SPACE TEMPERATURE ABOVE SETPOINT: FAN: CYCLE OFF, CONTROL VALVE: MODULATE TO FULLY CLOSED. D. DROP IN SPACE TEMPERATURE BELOW SETPOINT: FAN: CYCLE ON, CONTROL VALVE: MODULATE TO FULLY OPEN.

HOT WATER UNIT HEATER CONTROL

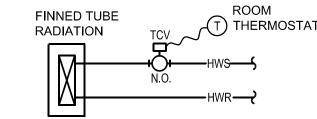
(T) THERMOSTAT

CABINET UNIT HEATER (HOT WATER)

A. THERMOSTAT: SINGLE SETPOINT.

B. CONTROL VALVE: TWO-WAY (OR THREE-WAY WHERE INDICATED), MODULATING, NORMALLY OPEN. RISE IN SPACE TEMPERATURE ABOVE SETPOINT: FAN: CYCLE OFF, CONTROL VALVE: MODULATE TO FULLY CLOSED. D. DROP IN SPACE TEMPERATURE BELOW SETPOINT: FAN: CYCLE ON, CONTROL VALVE: MODULATE TO FULLY OPEN. E. HOT WATER SUPPLY STRAP ON BULB SHALL PREVENT FAN FROM RUNNING UNIT UNITL HOT WATER IS SENSED.

HOT WATER CABINET UNIT HEATER CONTROL



RISE IN SPACE TEMPERATURE ABOVE SETPOINT: FAN: CONTROL VALVE: MODULATE TO FULLY CLOSED. D. DROP IN SPACE TEMPERATURE BELOW SETPOINT: CONTROL VALVE: MODULATE TO FULLY OPEN.

(1) PROVIDE NON-RESETTABLE HOUR METERS TO LOG RUN TIME OF EACH PUMP.

AIR SEPARATOR SCHEDULE AIR SEPARATOR AND/OR SERVICE STRAINER 3 [75] 85 [5] 1 [3] YES AS-B032A B0320A

	SYSTEM										MOTOR			
	SYSTEM	1			DISCHARGE		MIN							
CATION	AND/OR SERVICE	TYPE UNIT				PRESSURE		RECEIVER SIZE		NOMINAL POWER EACH		VOLT	RPM	REMARKS
	02111102		GPM	[L/s]	PSIG	[kPa]	GAL	[L]	HP	[W]				
0320A	BLDG STEAM	DUPLEX	18	[1.1]	25	[170]	14	[53]	0.3	[220]	1	120	1750	(1)
)(320A	SERVICE 320A BLDG STEAM		GPM	GPM [L/s]	GPM [L/s] PSIG	GPM [L/s] PSIG [kPa]	GPM [L/s] PSIG [kPa] GAL	GPM [L/s] PSIG [kPa] GAL [L]	GPM [L/s] PSIG [kPa] GAL [L] HP	GPM [L/s] PSIG [kPa] GAL [L] HP [W]	GPM [L/s] PSIG [kPa] GAL [L] HP [W]	GPM [L/s] PSIG [kPa] GAL [L] HP [W]	GPM [L/s] PSIG [kPa] GAL [L] HP [W]

AIR HANDLING UNIT AHU-B0320A

4. DUAL FILTER.

I. SYSTEM START/STOP:

3. STANDBY MODE:

4. OPERATE MODE:

a. SUPPLY FAN OFF.

c. OUTSIDE AIR DAMPERS CLOSED.

e. COOLING COIL CONTROL VALVE CLOSED.

g. HEATING COIL PUMP UNDER CONTROL.

a. START SUPPLY FAN AT MINIMUM SPEED.

1). HEATING COIL CONTROL VALVES.

3). COOLING COIL CONTROL VALVE.

MINIMUM DISCHARGE AIR TEMPERATURE AND FREEZE PROTECTION:

1. MAINTAIN DISCHARGE AIR TEMPERATURE AS FOLLOWS:

M. ECONOMIZER AND MINIMUM OUTDOOR AIR CONTROL:

STAND-BY MODE UPON SENSING AN AIR TEMPERATURE OF LESS THAN 40 °F.

B. CONTROL VALVE: TWO-WAY, MODULATING, NORMALLY OPEN.

SA FROM AHU

REHEAT COIL VALVE: FULLY CLOSED.

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B. THERMOSTAT: SINGLE POINT MONITORING AND CONTROL.

2. SECOND STEP: MODULATE REHEAT COIL VALVE TO FULLY OPEN.

MODULATE TO MAXIMUM OPEN. REHEAT COIL VALVE: FULLY OPEN.

VARIABLE AIR VOLUME BOX

E. DROP IN SPACE TEMPERATURE BELOW SETPOINT:

a. MODULATE OUTSIDE AND RETURN AIR MOTOR OPERATED DAMPERS.

1. HOT WATER COIL PUMP SHALL OPERATE AT MIXED AIR TEMPERATURES BELOW 40F. OR ON A CALL FOR HEAT.

2. MODULATE HOT WATER COIL VALVES, IN SEQUENCE, TO MAINTAIN A MINIMUM DISCHARGE AIR TEMPERATURE OF 50 F. (ADJUSTABLE).

AIR DAMPER IS OPENED 100% OR THE ECONOMIZER PROGRAM HAS RETURNED DAMPER TO ITS MINIMUM POSITION.

1. CLOSE OUT COOLING AND PREVENT FROM OPENING AT OUTSIDE AIR TEMPERATURES LOWER THAN 55 F (ADJUSTABLE).

a. A MANUAL RESET, LOW TEMPERATURE THERMOSTAT(S) LOCATED AT THE INLET OF THE COOLING COIL SHALL INDEX THE UNIT TO THE

b. MODULATE COOLING COIL VALVE TO MAINTAIN DISCHARGE AIR TEMPERATURE. VALVE SHALL NOT BEGIN TO OPEN UNLESS THE OUTDOOR

C. RISE IN SPACE TEMPERATURE ABOVE SETPOINT: FAN: CYCLE OFF, CONTROL VALVE: MODULATE TO FULLY CLOSED. D. DROP IN SPACE TEMPERATURE BELOW SETPOINT: FAN: CYCLE ON, CONTROL VALVE: MODULATE TO FULLY OPEN.

STEAM AIR CURTAIN HEATER CONTROL

A. BOX MANUFACTURER SHALL SHIP BOX TO TEMPERATURE CONTROL CONTRACTOR. FURNISH AND INSTALL DIRECT DIGITAL CONTROLLER ON BOX AND TURN BOX OVER TO HEATING CONTRACTOR FOR INSTALLATION.

D. RISE IN SPACE TEMPERATURE ABOVE SETPOINT:BOX ACTUATOR: MODULATE TO MAXIMUM OPEN POSITION.

C. CONTROL VALVE: TWO-WAY (THREE-WAY WHERE INDICATED), MODULATING, NORMALLY OPEN.

THERMOSTAT V

E. DOOR SWITCH AND TIMER SHALL ENERGIZE FAN AND OPEN TCV FOR 5 MINUTES (ADJUSTABLE) WHEN DOOR IS OPENED.

c. ENABLE THE FOLLOWING DEVICES:

2). HEATING COIL PUMP.

DISCHARGE AIR TEMPERATURE CONTROL:

2.) OUTDOOR AIR.

d. RETURN AIR DAMPER OPEN.

HANDLING UNIT CONTROLLER:

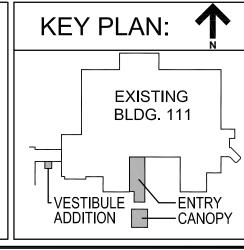
2. PUMPED HOT WATER HEATING COIL.

3. REFRIGERANT DX COOLING COIL.

b. ECONOMIZER SWITCHOVER SETPOINT.

Dept. of Veterans Affairs Medical Center 5000 W. National Avenue Milwaukee, WI









rawing Title HVAC SCHEDULES AND SCHEMATICS	Project Title Building 111 - Renovate South Entry
oproved: Project Director	Location Milwaukee, Wisconsin

695-12-101SCP Building Number Drawing Number

Office of **Facilities** Management

Date

Checked By: Drawn By: MJJ

MM601 Department of Veterans Affairs

FINAL CONSTRUCTION DOCUMENTS

1. FIRST STEP: BOX ACTUATOR: MODULATE TO MINIMUM OPEN POSITION. REHEAT COIL VALVE: FULLY CLOSED. THERMOSTAT: SINGLE SETPOINT CONTROL VALVE: TWO-WAY, MODULATING, NORMALLY OPEN. 3. THIRD STEP (WHERE INDICATED BY A REHEAT CFM ON THE VAV REHEAT BOX SCHEDULE): BOX ACTUATOR: E. LOCK OUT FINNED RADIATION OPERATION ABOVE 50 DEG F OUTSIDEA IR TEMPERATURE. WITH HOT WATER REHEAT COIL CONTROL HOT WATER FINNED TUBE RADIATION CONTROL

WWW,CHEQBAYGRP,COM

STEAM TO WATER HEAT EXCHANGER SCHEDULE

CIRCULATING FLUID

INITIAL PRESSURE MAX OPERATING

GAL | [L] | °F | [°C] | °F | [°C] | PSIG | [kPa] | PSIG | [kPa] | PSIG | [kPa] | PSIG | [kPa] | GAL | [L] |

STEAM AIR CURTAIN HEATER SCHEDULE

PRESS ENT VALVE

PSIG [kPa]

HOT WATER UNIT HEATER SCHEDULE

HOT WATER FINNED TUBE RADIATION SCHEDULE

FT | [M] | BTUH | [W] | °F | [°C] | °F | [°C] | GPM | [L/s] | FT | [Pa] | IN | [mm]

CFM [L/s] BTUH [W] °F [°C] °F [°C] GPM [L/s] FT [Pa] IN [mm]

PRESS ENT

HEATER

PSIG

GPM [L/s] FT [kPa] FT [kPa] °F [°C]

STEAM PRESSURE

ENT CONTROL

PSIG [kPa]

PUMP SCHEDULE

EXPANSION TANK SCHEDULE

RELIEF VALVE

NPSH AVAILABLE TEMPERATURE

ENT HEAT

EXCHANGER

TRAP

MIN % EFF NOMINAL POWER

MIN BLADDER

CONTROL

SEQUENCE

BRANCH PIPE

CONTROL

SEQUENCE

CAPACITY

LBS/HR [kg/HR]

ELECTRICAL MOTOR

PIPE SIZE TO TANK COLD WATER FILL

PHASE | VOLT | RPM

[] 3 460

1 120 1750

REMARKS

REMARKS

IN PARALLEL w/ CP-2-B0320A

REMARKS

WATER CONDITIONS

CFM [L/s]

60 [4] 150 [66] 180 [82] 2 [6] 5 [35]

MARK

MARK LOCATION

CP-3-B0320A B0320A

AC-70-D-40B

B0320A

B0320A

B0320A

B0320A

MARK LOCATION AND/OR

LOCATION

BLDG

SERVED

SO. ENTRY

BLDG SERVED

HOT WATER

HEATING COIL

SERVICE

AREA AND/OR

BLDG

SERVED

SO. ENTRY

SO. ENTRY

BLDG 70

COOR, VEST

COOR. VEST

(1) FULLY RECESSED CEILING UNIT WITH MANUFACTUER'S PAINTED FINISHED CEILING GRILLES.

AREA AND/OR

SERVED

SO. ENTRY

(1) SEMI-RECESSED WALL UNIT, INVERTED AIRFLOW, TWO ROW COIL, HIGH STATIC MOTOR.

ENCLOSURE

(2) SURFACE MOUNTED, INVERTED AIRFLOW, TWO ROW COIL, HIGH STATIC MOTIR.

LOCATION BLDG

(1) FIELD-VERIFY ENCLOSURE LENGTHS.

DISCHARGE

AND/OR

SERVICE

WATER

AREA AND/OR SYSTEM AND/OR

SERVICE

AHU-B0320A

APPROX SYSTEM

June 23, 2014

Project Number